

organisms found in ordinary and malarial earths, by A. Ceci.—Transfusion of blood and its effects on nutrition, by P. Albertoni.—On the pathological anatomy of the cornea in the glaucomatous eye, by F. Tartuferi.—On the presence of a cordon or slip on the Uncus of the Hippocampus in the brain of man and some other animals, by C. Giacomini.—On the chemical composition of the egg and its envelope in the common frog (*Rana temporaria*), by P. Giacosa.—Anatomical considerations of the doctrine of cerebral localisations, by C. Golgi.

Tome ii. fasc. 3, February 1, 1883, contains anatomical considerations of the doctrine of cerebral localisations, by C. Golgi (continued).—On compensative hypertrophy of the kidney, by C. Golgi.—Experimental studies on hypnotism, by A. Tamburini and G. Seppili.—The origin of the mesoderm and its relations to the vitellus, by G. Romiti.—On the anatomy of a fetal Otaria (*O. jubata*), by L. Camerano.—On the physiology of smooth muscular tissue, by A. Capparelli.—On the physiological action of certain substances on the vesical muscles, by P. Pellacani.—On the anemia of miners from a parasitological point of view, by E. Perroncito.—On the change in form of uric acid by the action of glycerine, by J. Colasanti.—On Ptomaines, by J. Guareschi and A. Mosso.—On some endoparasitic Protista, by Dr. Grassi.

Tome iii. fasc. i., April 15, 1883, contains:—On the sanitary improvement of the Roman Campagna, by C. Tommasi-Crudeli.—On the anemia of miners (conclusion), by E. Perroncito.—On some endoparasitic Protista (conclusion), by Dr. Grassi.—On the presence of a secretive tissue in vertebrates, by C. Emery.—On vibratile endothelium in mammals, by J. Paladino.—On the attenuation of carbon virus, and on its transmission from mother to fetus, by E. Perroncito.—On the acoustic epithelium, by A. Tafani.—On the termination of nerves in the striated muscles of torpedo, by J. V. Ciacchio.—The general physiology of smooth muscular tissue, by E. Sertoli.—On a new morphological element of the blood, and its importance in thrombosis and coagulation, by J. Bizzozero.—New studies of the chestnut disease, known as the ink disease, by J. Gibelli.

THE *Bulletin de l'Académie Royale des Sciences, des Lettres, et des Beaux-Arts* for 1883, part i., contains papers by F. Henrijean, on the part played by alcohol in nutrition; by MM. Valerius and Van der Mensbrugghe, on M. Delaurier's observations on the concentration of solar rays and the transformation of electricity into heat; by W. Spring, on the colour of marine, lacustrine, and fluvial waters; by C. Le Paige, on the homography of the third order in algebra; by Baron Northomb, on the political relations of the Netherlands during the seventeenth century.

SOCIETIES AND ACADEMIES LONDON

Royal Society, February 1.—“On the Affinities of Thylacoleo.” By Prof. Owen, C.B., F.R.S., &c.

Since the communication of the paper “On Thylacoleo,” in the *Philosophical Transactions* for 1871, further explorations of the caves and breccia-fissures in Wellington Valley, New South Wales, have been made, by a grant for that purpose from the Legislature of the Colony, and carried out by E. B. Ramsay, F.L.S., Curator of the Museum of Natural History, Sydney. The present paper treats of the fossils contributing to the further restoration of the great carnivorous Marsupial (*Thylacoleo carnifex*, Ow.) They exemplify the entire dentition *in situ* of the upper and lower jaws of a mature individual; the bones of the forelimb, of which those of the antibrachium and the ungual phalanges are described, are compared with those of other Marsupials, and of placental, especially feline, *Carnivora*. An entire lower jaw with the articular condyles adds to the grounds for determination of the habits and affinities of the extinct Marsupial.

Figures of these fossils of the natural size accompany the paper.

Geological Society, May 9.—J. W. Hulke, F.R.S., president, in the chair.—Rev. William Spiers and H. A. Williams were elected Fellows of the Society.—The following communications were read:—The age of the newer gneissic rocks of the Northern Highlands, by Mr. C. Callaway, D.Sc., F.G.S., with notes on the lithology of the specimens collected, by Prof. T. G. Bonney, F.R.S. The object of the author was to prove that the eastern gneiss of the Northern Highlands, usually regarded as

of “Lower Silurian” age, was to be placed in the Archæan. While admitting that this gneiss frequently overlies the quartzo-dolomitic group of Erriboll and Assynt, he held that this relation was due to dislocation accompanied by powerful thrust from the east, which had squeezed both formations into a series of folds, thrown over towards the west, so as to cause a general easterly dip. In Assynt the “Upper Quartzite” was first discussed. The author described several sections which he considered to prove that this band was the ordinary quartzite repeated east of a great fault, which brought up the Hebridean; in one place, Glen Coul, the quartzite being conformably succeeded by the brown flags and dolomite. The “igneous rocks” of Nicol (“Logan Rock” of Dr. Heddle) were regarded as the old gneiss brought up by a fault and thrown over on to the Assynt group to the maximum breadth of more than a mile. The “Upper Limestone” of authors was described as either outliers of the dolomite or a part of the Caledonian series. The “Caledonian” rocks were seen in Glen Coul to be immediately overlying the Hebridean, the Assynt group being caught in the angle between the two gneisses, and bent back in overthrown folds. The mountain groups of Assynt were described as usually consisting of cores of Hebridean gneiss swathed in or capped by sheets of quartzite. In the former case the quartzite on the western slopes was contorted into overthrown folds by the thrust from the east. In the Loch Erriboll district, the “granulite” of Nicol was considered to be a lower division of the Caledonian gneiss, though bearing some resemblances to the Hebridean. In other respects the views of Nicol were regarded as substantially correct. Along the entire length of Loch Erriboll, a distance of about twelve miles, the thrust from the east had bent back the Assynt group into overthrown folds, and pushed the Caledonian gneiss on the top of the inverted quartzite. This had produced the appearance of an “upper” quartzite passing “conformably” below the eastern gneiss. The superior antiquity of the Caledonian was confirmed by the occurrence of outliers of quartzite upon the Arnaboll (Lower Caledonian) series, and by the fact that the granite, which sent numberless veins into the gneiss, never penetrated the quartzite and associated rocks.—On a group of minerals from Lilleshall, Salop, by C. J. Woodward, B.Sc., F.G.S.—Fossil Chilostomatous Bryozoa from Muddy Creek, Victoria, by A. W. Waters, F.G.S.

Chemical Society, May 17.—Dr. W. H. Perkin, president, in the chair.—Capt. W. de W. Abney, F.R.S., delivered a lecture on photographic action studied spectroscopically. The lecturer said he wished that all chemists were photographers; photography occupied the borderland between chemistry and physics; he was firmly convinced that photographic action was interatomic. The action of a developer was then experimentally illustrated; this action is physical. Light causes the liberation of iodine in a film of silver iodide, and the developer precipitates metallic silver. The silver so reduced is infinitesimal, and must be in many cases derived from the film. The positive pole of the electric arc was found to be the best source of light. Gratings could not be used for quantitative work, as they varied so much in their ruling; a glass prism was therefore used to form the spectrum. A film of silver chloride absorbs only the violet end of the spectrum; silver iodide absorbs more, and the bromide most of all; accordingly when a photograph of the spectrum was taken on these three films it was seen that the portion of the chloride acted upon was very much less than when bromide of silver was used. It was shown that a sensitiser essentially takes up the halogen liberated by the action of light. One salt of silver may act as a sensitiser to another salt of silver. Photographic action is completely prevented by the presence of oxidisers, as bichromate, &c. Reverse photographs were discussed, and the action of sodium sulphite in preventing the evil effects of over exposure. The peculiar green condition of silver bromide which is sensitive to ultra-red rays was explained. In conclusion the lecturer said that his principal object was to warn chemists of some of the numerous pitfalls which they might encounter in scientific photography.

Meteorological Society, May 16.—Mr. J. K. Laughton, F.R.A.S., president, in the chair.—F. A. Bellamy, T. A. Mercer, Rev. H. J. Poole, and A. Wise, M.D., were elected Fellows of the Society. The following papers were read:—Composite portraiture adapted to the reduction of meteorological and other similar observations, by G. M. Whipple, B.Sc., F.R.A.S. It has often been remarked that one of the main, if

not the chief, of the difficulties the meteorologist has to contend with, is the enormous amount of preliminary labour which has to be expended in the not very pleasing task of forming the observations he may wish to discuss into tables, casting the columns of figures so obtained, and then computing the means.

With the view of arriving at results by a shorter cut, the author has been led to consider the possibility of employing a method, suggested by a consideration of the highly ingenious system of composite portraiture, invented by Mr. Francis Galton, F.R.S., and utilised in his anthropological studies.—Note on atmospheric pressure during the fall of rain, by H. Sowerby Wallis, F.M.S. The author discusses the condition of atmospheric pressure while rain was falling, during 1882, and finds that, out of a total of 136 rainy days (which were available for his purpose), on 54 per cent. the rain was accompanied by diminishing pressure, on 27 per cent. by increasing pressure, and on 19 per cent. by steady pressure.—New method of reading a thermometer and hygrometer at a distance by means of electricity, by Arthur W. Waters, F.G.S.—An integrating anemometer, by W. F. Stanley, F.M.S.—Observations on the force of the wind at sea, by D. W. Barker, F.M.S.—Meteorological observations at Zanzibar, east coast of Africa, during 1880 and 1881, by Surgeon-Major C. T. Peters, M.B.—Diurnal rainfall at Bangkok, Siam, by Capt. G. H. Inskip, F.R.G.S.

BERLIN

Physiological Society, April 27.—Dr. Mendel read a paper on the anatomy of the corpus striatum and lenticular nucleus. The older view, which was supported by the valuable anatomical researches of Prof. Meynert, was that the relation of the corona of radiating fibres above the lateral ventricle ("Stabkranz") to the lenticular nucleus and corpus striatum consisted in this, that in it ran bundles of nerve-fibres, which arise from the brain cortex and end in the large ganglia, whereas Dr. Wernicke three years ago propounded the view that a connection did not exist between the brain cortex and the corpus striatum and lenticular nucleus, but that these latter were bodies of the same range as the cortex. Dr. Mendel has for some years past studied the anatomy of these parts of the brain very attentively, and has been brought back to the older view by a series of sections (of the brain) of dogs, monkeys, and men, which series he laid before the Society. He found not only the bundles of out-streaming fibres, which alone were acknowledged to exist by Dr. Wernicke, but also a larger number of in-streaming bundles of fibres which show the connection of these brain-nuclei to the cortex. In the discussion Dr. Wernicke stated that he was not convinced by the paper or preparations of the correctness of the view propounded by Dr. Mendel, whereas Prof. Munk believed that his not-yet-completed physiological experiments afford grounds for Dr. Mendel's view.

Physical Society, May 4.—Prof. Hauck laid before the Society a model of a mechanical apparatus which solves the problem of combining drawings and photograms, which are drawn in two planes into a combination figure in the third plane. Prof. Hauck then explained the principle of the apparatus, and pointed out by means of geometrical figures the conditions which must be fulfilled in order to project any given points of two planes in common points of a third plane. He then proceeded to the complicated problem of bringing points of three planes, which meet in a corner, to a common projection, and applied these figures to the special case of projecting the perspective drawing of a building from its ground-plan and elevation. The model was calculated and arranged for this case, but the apparatus, in which the motions are produced by means of polished lineals, each running upon two pins, can be put to manifold uses in physical space investigations.

PARIS

Academy of Sciences, May 14.—M. Blanchard, president, in the chair.—The following papers were read:—On the pyro-electricity of quartz, by C. Friedel and J. Curie, second part.—On the cultivation of the cacao plant, with an analysis of the constituent elements of the cacao and chocolate berries, which were shown to contain in various proportions albumen, legumine, phosphates, fat, starch, sugar, theobromine, besides the materials entering into the formation of bone.—On the action of birds in flight studied by means of photography, with figures showing the successive positions of a pigeon on the wing at intervals of one-ninth and one-eighth of a second, and a closed curve representing the trajectory of the tip of the wing obtained by means

of a special contrivance, by M. Marey.—On a double sulphate of iridium and potassium, by M. Lecoq de Boisbaudran.—On the diminution of virulence in carbon bacterides and their spores under the influence of antiseptic substances, by MM. Chamberland and Roux.—On iodine associated with the sedative alkaloids of opium treated both as a preventative and curative in the case of typhoid fever, by A. Delbovier.—On the immunity against attacks of Phylloxera enjoyed by the vine cultivated in the sandy soil of Algeria, by MM. F. Couvert and L. Degruilly.—Observations on the new planet 233 Borelly made at the Paris Observatory, by G. Bigourdan.—On the determination of the meridian in low latitudes, such as that of Rio de Janeiro, by M. Cruls.—On the conservation of energy and periodicity of the solar spots, by A. Duponchel.—On the laws of coincidences between the reductions of periodical fractions of the "two modes," by E. de Jonquières (continued).—On the generalisation of Theriat's theorem of numbers due to M. Serret, by M. Picquet.—On the possibility of extending to any electrolytic field the electro-chemical method in the figuration of potential distribution, by A. Guéhard.—On the influence of atmospheric pressure on the eruptions of gas and water in the Montrond Geyser (Loire), by F. Laur.—On the differences in the temperature of the sea and air, by M. Semmola.—On the quantitative analysis of sulphur and carbon in sulpho-carbonates, by A. Müntz.—On the regular surface-fissures in certain rocks, such as the hard eocene limestone used in the construction of the old ramparts of Genoa, by Ch. Contejean.—On new physiological studies of the torpedo, by M. Marey.—On the functions and organs of suction and deglutition in the leech, by G. Carlet.—On a case of purulent ophthalmia produced by the infusion of the seeds of the liquorice plant, by L. de Wecker.—On the fundamental principle of the electric log now in use in the French fleet, by M. G. Le Goarant de Tromelin, who claims priority of invention over the electric log invented by M. Fleuriat.

CONTENTS

PAGE

Human Faculty and its Development. By George J. Romanes, F.R.S.	97
The Geological History of Britain	99
Our Book Shelf:—	
Taschenberg's "Die Verwandlungen der Tiere"	100
Letters to the Editor:—	
Natural Selection and Natural Theology.—George J. Romanes, F.R.S.	100
Carson Footprints.—Prof. Joseph Le Conte	101
Cloudiness of Aquarium.—X.; W. Saville Kent	102
Singing, Speaking, and Stammering.—Alex. Melville Bell	102
On the Cold in March, and Absence of Sunspots.—Dr. C. J. B. Williams, F.R.S.	102
The Soaring of Birds.—Dr. Hubert Airy	103
The Zodiacal Light.—E. R. Turner	103
Sheet Lightning.—Fred. Pratt	104
Pocky Clouds.—Fred. Pratt	104
Clerk Maxwell's "Devil on Two Sticks."—Denny Lane	104
The Centres of a Triangle.—W. H. H. H.	104
The Royal Geographical Society	104
The True Orbit of the Auroral Meteoroid of November 17, 1882. By Dr. H. J. H. Groneman	105
The Aurora Borealis, II. By Prof. Selim Lemström	107
The Flora of Ancient Egypt. By Dr. G. Schweinfurth (With Illustrations)	109
On the Chemical Characters of the Venom of Serpents. By Sir J. Fayrer, F.R.S.	114
Notes	114
Our Astronomical Column:—	
The Minor Planet, Andromache	116
The Great Comet of 1882	116
The Obliquity of the Ecliptic	116
Geographical Notes	116
A New Form of Seismograph. By Charles A. Stevenson, C.E. (With Diagram)	117
University and Educational Intelligence	118
Scientific Serials	118
Societies and Academies	119